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AUTHOR McCage, Ronald D.
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ABSTRACT

Before a vocational education research and development agenda for the 1980s can be formulated and implemented, a national policy on economic and human resource development should be in place. In its absence, such an agenda must be shared in light of several factors that reflect the current demographic situation and long-range trends, including a projected skilled labor shortage, a serious youth unemployment problem, increased numbers of women in the labor force, an increased defense budget for new weapons systems, and reduced federal support and involvement. Adequate funding should be available for national, state, and local research and development. Federal-level research and development should center on indepth examination of issues that have immediate and long-range implications for policy and provide for indepth assessment of nationally driven incentives. The major focus of federal dollars that are granted to the states should be applied, rather than basic, program improvement. At the local level, federal dollars should be used to ensure local program improvement broadly defined. (YLB)

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Presidential Address
American Vocational Education Research Association
St. Louis, Missouri
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# A Research and Development Agenda for the 1980's: Productivity and Economic Advancement, Through Human Resource Development

Ronald D. McCage

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## Introduction

The theme of productivity and economic advancement through human resource development is not new. In fact, Gene Bottoms, Rupert Evans and others were using it extensively in early 1980. I first used the theme in an address to the PREP Conference in Springfield, Illinois, on September 19, 1980. At that time I borrowed heavily from the ideas of Bottoms and Evans and I will do so again tonight. I used this theme during the AVERA - National Research Coordinating Council Colloquium on the Research Agenda for the 1980's. I fully realize that from a traditional perspective, the AVERA Presidential address is meant to be new, original and scholarly. If you will allow me, I plan to digress from that pattern. I feel the message I have to deliver is of utmost importance to the long term survival of vocational education program improvement and the contributions we can make to human resource development through research and development. By the way, when I use the phrase, research and development, I am referring to both basic and applied research and to both personnel and material type development. In fact, I am talking about the total spectrum normally associated with program improvement through a systematic research and development process.

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In October, 1982, the Department of Labor reported that unemployment in the United States had risen to a level of 10.2%. In November, the trend continued with the rate rising to 10.5%. This marked the first time since the great depression that unemployment had reached and maintained a double digit level. Rather than confront the real problems and look for long term solutions, our government tends to be caught up in the concept that short term job creation programs will solve the problem. Politically, this may be the case; but realistically it will not provide the solution we need because the problem goes much deeper than this.

Simply stated, we do not have an unemployment problem in this country. We have a serious mismatch between the skills possessed by potential and active workers and the skills required by the jobs that exist. In other words, there is a near statistical balance between the number of jobs going vacant and the number of persons desiring to hold those jobs. Obviously much of this mismatch has been brought about because technology has progressed at a more rapid rate than our institutional capability for educating and training persons to work in today's technological world. The impact of space age electronic miniaturazation has taken us out of the industrial age and projected us into the informative age and we haven't seen anything compared to what will occur in the decade of the 80's.

Many states have set about to implement various economic development programs, and some of these efforts have been successful. But the majority of these efforts will prove to be ineffective over time since they operate on a quick-fix, supply-demand solution to the problem of maintaining a near balance between jobs and qualified persons to fill the jobs. These

ineffective approaches are masked by short-term goals which depends on a design of identifying firms to locate or expand in a state, finding training institutions willing to meet industrial start-up needs, establishing working relationships between the two partners, and successfully meeting the immediate goal of producing a trained workforce for a specific set of jobs. But what happens next? Does the cooperation continue? Is it based on any type of long-range policy or goal? Is the next step upgrading, etc.? We must look beyond the "quick fix, supply demand" mentality and concentrate on the long-term systematic development of human and material resources.

Countries such as Japan and Germany have become competitive in international markets because they tend to rely on an educated and trained work force that has some involvement in the day to day management of the work environment. These countries have established policies for human resource development that are based on the long-term economic goals of the country. These countries believe that the ability to read, communicate, and achieve scientific and technological literacy is as essential to success and survival in the market place as the training of someone to operate a specific piece of equipment. They believe that for persons to perform psychomotor skills successfully they must be able to understand fully what is taking place with the technology or processes involved. In Japan the typical elementary-secondary level student attends school for 8 - 9 hours per day for 240 days per year. By the time they get to a technology-based program, they are well grounded in math and science. Can we say this? In today's computer and electronics driven world of high technology, no country can afford not to adopt this point of view.

Therefore, the first order of business for the 1980's is for the United States to devise a national policy for economic development that maximizes the development of our human resource potential. Such a policy must incorporate the capabilities of all major educational and training delivery systems, from kindergarten through the university, including those in the private sector. It must assure direct involvement and linkages with business and industry and must be based on the general philosophy of vocational education, which professes that a complete worker is one who has mastered the basic education and communication skills along with mastery of occupational skills. The policy must provide for career ladders and for the continuous preparation and training necessary to climb to the next rung on the ladder, or to make lateral transfers within the world of work. Our country can no longer settle for just meeting the needs of today, and such a Federal policy must, therefore, seek to achieve its central purpose, which is to develop the nation's primary resource, its people. When this occurs we will once again become the most productive and competitive technological nation in the world. Simultaneously, state and local governing bodies must develop complementary policies and programs.

Before a vocational education research and development agenda for the 1980's can be formulated and implemented, we should have in place a national policy on economic and human resource development. In its absence, we are forced to shape such an agenda in the light of demographic trends, developments in technology, governmental policies, prior research findings, and the opinions of recognized respected experts. Today we live in a world characterized by high unemployment, dissatisfaction with centralized

government, and an industrial and business community being turned upside down by space age electronics, communications advances, and new dimensions of automation.

## Key Factors

The following factors more clearly reflect the current demographic situation and long-range trends with implications for research and development in the 1980's:

1. The United States has a projected skilled worker shortage of at least fifteen years. We have a current unemployment rate of 10 percent and assurances that it will rise even higher. Half of our workers who are classified as journeymen are over fifty years of age. The machine tool area which is critical to national defense is in serious trouble, and we have a projected shortage of from 300,000 to 600,000 in the secretarial occupations alone.
2. We have a serious youth worker unemployment problem. Fifty percent of our black males and Spanish speaking populations are unemployed. However, we have reached our peak in the baby boom, and by 1990 youth will become one of our most precious commodities. This will set up fierce and intense competitive situations between higher education institutions, defense institutions, and the market place at all traditional exit points of our education system.
3. Women constitute approximately 50 percent of our labor force and may account for as high as 60 percent in the future. Most experts say that women in the work force will peak around the 60% level.

4. An increased budget for defense will seek to produce new weapons systems. However, our military industrial complex is not yet geared up to handle the situation. Nor do we have the types of trained or trainable soldier to service and operate the higher sophisticated systems that are being planned and produced. Moreover, it is highly evident that the military is concentrating on capital intensive investment at the expense of funds for the training and upgrading of personnel.
5. In terms of Federal policy, we in vocational education are faced with a reduced level of Federal support, the possibility of block grants, the shift of emphasis from the secondary to the post-secondary level, the shift from a dependence on the public sector, to a dependence on the private sector and a potential downgrading of the Federal involvement because of the potential abolition of the Department of Education.
6. Finally, current trends tell us that the situation will probably get worse before it gets better. The shifts in our age groups, the continuous relocation of industry from the snowbelt to the sunbelt, from urban to suburban to rural, and the impact of technology on our daily lives shows no signs of letting up.

Why spend this much time on national and international problems when most of us work at a regional, state or local school or university level. Simply stated, we can no longer afford to separate the problems of the Federal, state, and local levels when we live in an international economic community. Many of our problems are the same at all levels, and the main

differences lie in the program improvement roles each level should play in addressing and solving those problems. Those of us in vocational education research and development need to spend a considerable amount of effort in sorting out and determining what the Federal, state and local roles should be in the area of research, development, and personnel training.

We can no longer afford to be redundant in and among levels. We must learn to be more frugal and not automatically jump on every bandwagon that arrives on the scene. When things such as career education, environmental, energy, solar energy, economic development, productivity, etc., appear on the horizon, we must learn to ask "What is our role and function in this arena?" We must avoid acting as we have in the past -- being caught-up in fads and only later asking ourselves, "Why is everybody doing the same thing? Why didn't we work together to solve the problem?"

## Federal Level Issues and Concerns

We must see to it that we have an adequate level of funding each year for national, state, and local level activities in applied research and personnel development. The total funding for national level research and personnel development should be at least 10 percent of the total appropriated for vocational and technical education. These funds should be used to support a National Center for Research in Vocational Education; a national network for data collection capable of meeting Congressional, Federal, and state level reporting needs, a national network for the collection and dissemination of curriculum materials; and a small, but efficient, number of quality institutions designed to conduct specialized research and personnel development in high priority areas of national interest.

To facilitate national level research, the "contracts only mentality" must be eliminated and replaced by a priority driven system that depends on a balance of long-term grants, cooperative agreements, and contracts for implementation. Good research is directly related to the time-on tasks required to carry out a study properly. Continuity of effort is essential to the assessment and understanding of trends. To depend upon one year, short-turn-around-high-impact-producing projects is not an effective management approach to producing high quality research. Accountability studies would indicate that this approach has not been effective in addressing problems of a long-term and serious nature.

The very nature of national level activities must also be carefully examined. National level research and development efforts should center on the in-depth examination of issues that have immediate and long range implications for policy and that provide for the in-depth assessment and evaluation of nationally driven incentives that are in progress. Federal dollars should not support projects within states that center around limited curriculum development objectives or the demonstration of traditional delivery concepts. The federal dollar does have a definite place in program and personnel development, where cutting edge concepts are involved, such as, for example, the impact of high technology on the vocational-technical education system. Federal level programs should play a major role in assisting states in the identification and analysis of critical data and information as well as provide for an exchange of materials in and among potential users.

Federal level research should support both basic and applied efforts and should be funded to address the following type of questions.

1. What is high technology and what are the career fields within high technology?
2. What is the role of vocational and technical education in the world of high technology?
3. What impact will technological trends have on the future role of the secondary, postsecondary, adult, university, and proprietary providers of vocational and technical education?
4. What does more time-on-task mean in terms of increased training productivity, or is increased productivity a product of "worker attitudes?"
5. What impact will demographic trends have on our secondary, post-secondary and adult level programs in the future?
6. What does increased defense spending mean to vocational and technical education?
7. What does the reduction of Federal resources for vocational programs mean, when the questions of equal access and equitable treatment are weighed against the concept of producing the most capable and best trained workers in the shortest period of time?
8. How well has the set aside concept worked in ensuring that the handicapped and disadvantaged are served, or what is the best form of funding for vocational education at the Federal, state, and local levels?

9. What is the cost to society when we do not train disadvantaged, dislocated, misplaced, or handicapped persons?
10. Does our vocational education system really work? Is it cost effective when compared to other delivery systems? How do we achieve program articulation?

Six things must occur at the Federal level before we can address the research agenda of the 1980's.

1. Major emphasis must be placed on defining the roles of and linkages between Federal, state, and local research and development functions.
2. The Federal level must take a lesson from the states and learn how to establish long-range priorities in a systematic manner. This process must place a premium on the involvement of persons in the field.
3. Federal level resources should be placed in research and human resource development activities that specifically address national issues and that have both immediate and long-range policy implications for our field or that help to assess and evaluate how well we are doing in addressing both general and special goals. The NIE Congressionally mandated study of vocational education should be expanded and should serve as the heart and soul of this concept.
4. Better uses of demographic and trend information should be made to help determine the research questions (priorities) much further in advance than is done today.

5. A major emphasis needs to be placed on the dissemination and utilization of the hundreds of products that have been developed in the past decade. Attention to the determination of quality must be built into the implementation of this concept.
6. The graduate level leadership development fellowship programs must be reestablished in some form. The real impact of this program is now becoming evident.

## Issues and Concerns

The major focus of Federal dollars that are granted to the states should be centered around the concept of program improvement. State level program improvement should take two forms. One should cover the entire spectrum of (a) priority identification and planning, (b) research and assessment, (c) development of concepts and models, (d) curriculum and personnel preparation; and (e) dissemination and utilization with an overriding concern for constant evaluation and feedback. The other should be directed at improving programs at the local level.

The majority of state level program improvement activities should be applied rather than basic. The major emphasis should be placed on competency based curriculum development, performance based testing and personnel development with a balance of in-service and pre-service components. Another major emphasis at the state level should be in the dissemination and utilization of existing materials. States should make maximum use of the products of the National Center for Research in Vocational Education. They should participate in regional networks such as the National Network for Curriculum Coordination in Vocational Education (NNCCVTE) and critically examine the products of American Association of Vocational Instructional

Materials (AAVIM), Vocational-Technical Education Consoritum of States (V-TECS), and Mid-American Vocational Curriculum Consortium (MAVCC), Industrial Distributive Education Curriculum Consortium (IDECC), and Student Occupational Competency Achievement Testing (SOCAT) of NOCTI, in resolving their problems. Consortia type vehicles such as these have and will continue to help eliminate the duplication of effort and simultaneously maximize the return on each dollar expended. Efforts should be initiated to cause these organizations to work together so that the efforts of each will be maximized in a more comprehensive manner.

States need to be relieved of the "contracts only mentality" and be given the flexibility to use other vehicles for managing research where appropriate. States need to be relieved of the current interpretation relative to "impact assessment," which is totally inappropriate and counterproductive to quality research. State level activities should center around the following:

1. The development of competency-based curriculum founded on what actually occurs in the work place. Such developmental efforts must include a balance of the traditional career areas as well as the emerging high technology areas.
2. The utilization of industry-based standards in the identification of program standards and the development of performance testing vehicles.
3. The provision of capabilities in our universities for conducting sound and systematic research and development in a competent and efficient manner.

4. The constant examination of cooperative methods used in program delivery, especially where technological advances have made it economically impossible to provide programs in the traditional school setting and where linkages with industry are critical.
5. The establishment of state level data and information systems which support systematic and sound decision making.
6. The extension of research in the evasive area of articulation as a function of technological impact on program and delivery levels.
7. The continuation of emphasis on how best to train and integrate the diverse age, sex and ethnic populations so as to insure that special needs are met through effective programs.
8. The expansion of research and development programs designed to serve those who reside in large urban centers and rural and sparcely settled areas.
9. The persistence of emphasis on dissemination and utilization activities specifically developed to provide effective linkages among local, regional, and national institutional efforts.
10. The expansion of multi-unit research and development efforts, such AAVIM, V-TECS, MAVCC, IDECC, and (SOCAT).

States and local level university and district participants should work collaboratively to improve the productive vocational and technical programs at the local level. With fewer Federal dollars available, we must use them wisely and we must systematically eliminate those that are non-productive. We must learn to pick winners. We can no longer afford to fund programs that

are not contributing to the economic and human development capabilities of local, state, and national communities. With Federal dollars for vocational education now at their present level, and with the demonstrated need to stay abreast of changing technology, the best use of Federal dollars at the local level would be to insure local program improvement broadly defined. Future vocational education legislation should clearly state that Federal basic grant dollars must be used to support activities that improve the delivery of high quality programs at the local level. Authority must be given to states to award direct, traceable, and accountable grants to local agencies. Grants that can be used for: (1) the purchase of equipment in high-need areas; (2) the purchase and/or development of the best curriculum resources available; (3) the purchase and/or development of the best staff development programs available; (4) the participation of educators in multi-unit training and development activities; (5) the purchase or conduct of planning and self assessment activities that lead to the improvement of career development and vocational guidance programs and services; and (6) the purchase and/or development of a strong local capability to assess and serve persons with special needs.

The concept of a formula grant system for distributing vocational funds within states is highly questionable since it is impossible to ensure that funds are expended for the Federal purpose intended. Federal funds should be directed at critical priority areas and methods of funding should be developed which assure that the purposes are met. The current funding system used by most states does not guarantee this, and the implementation of a block grant concept will make the situation worse.

Research and development at all levels must operate in keeping with a philosophical and conceptual base which provides for front-end planning and careful priority determination involving input from the participant and execution through tested mechanisms and processes for accomplishment. We must get away from the program/turf notions and look at research and development in a conceptual framework that is systematic.

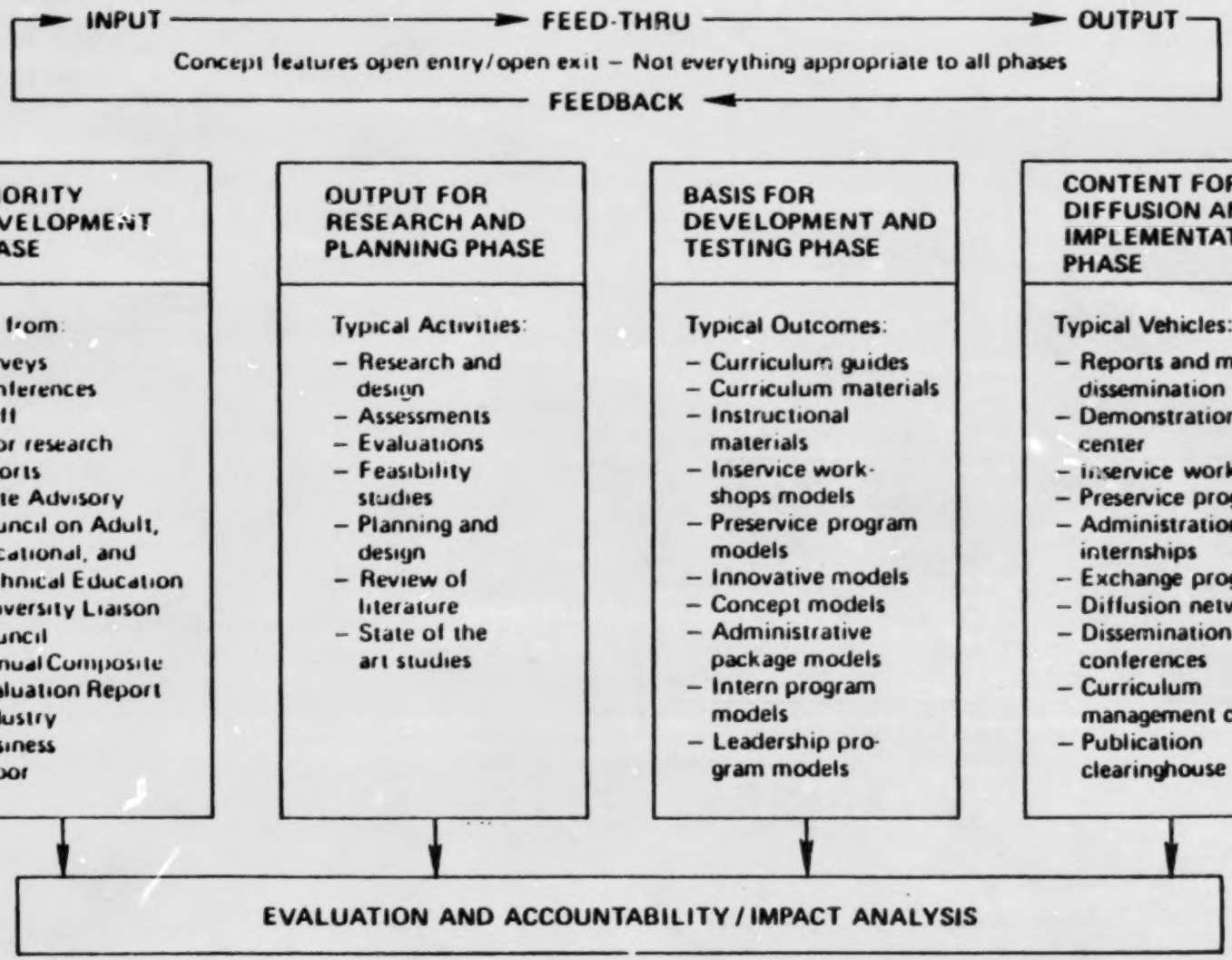
The following diagram represents one such conceptual framework which is currently operating effectively in the State of Illinois.

From a Different Perspective

I would like to close this address by changing the focus. Instead of dealing with the international, national, state and local perspective. I would like to state that none of my goals or your goals are achievable unless each of us is willing to pay the ultimate price for success and bear the responsibility for failure. Everything that has ever been achieved or will ever be achieved depends on people. More importantly, it depends on the attitude of people and their willingness to make a contribution to others. It is only through our sacrifices that we make for the betterment of others, that our own selfish needs are fulfilled.

To illustrate this further, I would like to borrow some points that my friend Fred McClure made in his keynote address to the July 1981 National Network for Curriculum Coordination Conference held in Atlanta, Georgia. Fred's address was entitled "It is your attitude, not your aptitude that determines your altitude in life." It's your attitude not your aptitude that determines your altitude in life. I must admit that under normal circumstances, I can't remember what someone has said in a speech two hours

## Program Improvement Continuum for a Vocational Education Research and Development Operation



after it's over. But this one was different. In this case it was not his ability to deliver that struck me the most. It was the message and the illustrations that he used to get the message across. I would like to share one of his illustrations with you. I hope it has the same effect on you it has had on me.

Fred told the story of a young man who was working in a field in Scotland around 1890. As he worked he heard screams for help which were coming from a nearby field. The young, ten-year-old dropped his work and ran in the direction of the screams. When he arrived on the scene, he discovered a tragedy in the making. A young man was drowning in the pond and his father, who couldn't swim, was standing helplessly on the bank. Instantly the young man jumped into the water and rescued the other young man from a sure death. The father, in his expression of gratitude, asked the young man what he would like to do when he grew up. The young man replied that he would like to become a doctor but that this was not possible since his father was a poor farmer and could not afford the high cost of medical school. As luck would have it, the drowning boy's father was very wealthy and influential. As a reward for saving his son's life, he promised to educate the young man so that he could realize his ambition.

Some fifty years later, in the fall of 1942, a world renowned surgeon was summoned to Buckingham Palace and sent on a very important journey. He was put aboard the fastest Royal air craft available to the Crown and transported to the coast of Africa. There he was put aboard the Flagship of

the British Empire and ushered to the side of his best friend who was stricken with pneumonia. There, aboard that ship in the midst of World War II, Sir Alexander Fleming saved the life of Sir Winston Churchill for the second time.

But the saving of one life twice, even one as important as Sir Winston Churchill, was only a small part of the contribution that Sir Alexander Fleming made to this world. As most of you know, he discovered the wonder drug, penicillin which has been used to save countless lives. Had Sir Alexander Fleming been like most of us, especially me, he would have never succeeded in this notable research effort. He would have quit after five or six attempts. Instead, he persisted relentlessly toward his objective and on the 603rd attempt he was successful, and history records his success as "an accidental discovery."

It's your attitude, not your aptitude, that determines your altitude in life. To achieve the goal of a national policy for human resource development, we must start at home. We must all strive to achieve to our maximum potential. We must all become involved. If we want adequate support and emphasis on vocational education program improvement activities, we must all become active, put aside our foolish differences and pull together. We must cease to be spectators with the idea that Joel or Earl will take care of us. We must identify the issues and present solutions to the problems. If we don't, someone else will.

It has been said that people can be divided into three groups:

Those who make things happen,

Those who watch things happen,

Those who wonder what happened.

Which will it be?

Thank you!